

## Hypothesis

# The Existence of Life is Based on Stabilization of Dynamic Energy Balance (Harmonization): Its Scientific, Philosophical and Religious Significance

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It is considered that the stabilizing force of dynamic energy balance (harmonization) which controls the universe is relevant to the origin of all living organisms, their evolution, and indeed the existence of life now and in the future. In this paper I will consider the significance of the existence of life and its primary motive force, and the philosophical and religious significance of the existence of life from the above viewpoint. In addition, in this paper I would also like to consider the future of life on earth together with the responsibility of mankind for it.

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## Introduction

In a previous report<sup>1</sup>, I presented the hypothesis that life on earth was formed as a joint work between the earth and another heavenly body (a white dwarf) with the stabilizing force of dynamic energy balance (harmonization) which controls the universe as its primary motive force. After that, I<sup>2</sup> presented a hypothesis that the molecular basis of organic evolution is directed to protein evolution through genetic fixation by the self-selection of living organisms themselves which aims at the stabilization of dynamic energy balance (harmonization) of the organisms themselves.

So, what is the existence of life that appeared as described above and has been evolving ever since? Furthermore, what sort of primary motive force gives life to these organisms? Consideration of these things is the most important subject since mankind pondered its existence. Also, it has been one of the most important research subjects in Western philosophy since Plato and Aristotle. In the 20th century, this subject has been fully discussed by Scheler<sup>3</sup>, Heidegger<sup>4</sup> and others.

I consider that the primary factor for the existence of living organisms is the state of balance (harmonization) of the dynamic energy of these organisms, and the primary motive force is the stabilizing force of dynamic balance (harmonization) which controls the universe and all things in it. I would like to examine the scientific significance of the existence of life and its primary motive force from

the viewpoint of the hypothesis of stabilization of dynamic energy balance (harmonization).

I would also like to examine the philosophical and religious significance of life from the viewpoint of the above hypothesis. Originally, science, philosophy and religion together pursued the common aim of revealing universal truth. Furthermore, global warming and many other problems are causing worry about the state of the earth at present. I would therefore like to examine the future of life on earth and the responsibility of mankind for it.

The scientific significance for the existence of life due to relationships within the hypothesis of stabilization of dynamic energy balance (harmonization) is explained by the following:

(1) The origin of all things and all phenomena is energy.

The natural world is very abundant in diversity. In the universe infinite multifarious things, i.e. "all things" exist, and infinite phenomena occur in accompaniment with changes in these "all things". It appears that these all things exist with remarkable order, and these phenomena also occur with remarkable order. It is considered that the origin of all these things and all these phenomena is energy, and that the existence and the changes in all things and all phenomena are in accordance with the various rules of energy. Furthermore, the relationship between these energy and matter or objects can be shown in Einstein's equation,  $E=mc^2$ .  $E$  is energy,  $m$  is mass, and  $c$  is the velocity of light. In other words, energy, matter and objects

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can be interchangeable.

(2) The existence of all things is based on the stable state of dynamic energy balance (harmonization) at their individual level.

All things in the universe whose common origin is energy are constantly appearing and disappearing and are continually changing. The reason for this is that energy is continually flowing and changing. However, the total volume of energy in the universe is constant (the law of conservation of energy).

A certain object proceeds through a hierarchy towards increasing entropy following a causative incitement and becomes intangible energy via matter, molecules, atoms, atomic nuclei and elementary particles. A state of balance (harmonization) of energy is maintained at each phase at a certain energy level. On the other hand, intangible energy proceeds through a hierarchy towards decreasing entropy following a causative incitement, and becomes an object via elementary particles, atomic nuclei, atoms, molecules and matter. It appears that among these objects, heavenly bodies have developed as special entities due to their sizes, and living organisms have developed as special entities due to their functions<sup>1</sup>.

Accordingly, I consider that the existence of all things in the universe occurs because the state of energy is concentrated by a causative agent in a certain place in the universe forming an internal world separated from the external world, and that it occupies a certain place in the universe for a certain time due to the stability of dynamic energy balance (harmonization) between internal and external worlds.

(3) The primary motive force for the existence of all things is the stabilizing force of its dynamic energy balance (harmonization).

I have mentioned that the existence of all things is a stable state of dynamic energy balance (harmonization) in the preceding paragraph. So what sort of force works on them? As mentioned before, this stabilizing force mainly works at the following levels of power<sup>1</sup>. Namely, between huge universal gravity and opposing energy forces emitted by nuclear fusion reactions in a fixed star. Between huge universal gravity and opposing energy forces emitted by nuclear fission reaction and chemical reaction at the level of extranuclear particles in a planet. Furthermore, between electromagnetic forces and free motion and opposing energy forces in object, matter, molecule and atom, as well as between so-called strong powers and opposing energy forces in atomic nuclei and between so-called weak powers and opposing energy forces in elementary particles.

As such, it appears that the stabilizing force of dynamic energy balance (harmonization) which controls the whole of the universe and also exists in all things in the universe is continually working in each and all phases in the formation of all things. Accordingly, I<sup>1,2</sup> consider that the primary motive force of the existence of all things is the stabilizing force of dynamic energy balance (harmonization) which controls the universe and all things in the universe.

(4) What is life?

I have so far mentioned the system of control of all things in

general. So, what are living organisms among all things? It is rather difficult to define life, but my own definition is as follows: Life is the state where energy is concentrated in a certain place in the universe by an inciting agent where formation of an internal world separated from the external world occurs, and that it occupies a certain place in the universe for a certain time, and that stability of dynamic energy balance (harmonization) between its internal world and the external world is formed.

The above definition up to here is the same as that of all other things, however, living organisms are organic bodies which uptake energy (matter) voluntarily from the external world (environment) in which they exist, reform (metabolizes) the energy (matter) which was consumed, construct a system or an order of itself, and form a stable state of dynamic energy balance (harmonization) between the internal and external worlds (environment), maintain homeostasis, reproduce voluntarily, and evolve. This is my definition of living organisms.

(5) Living organisms exist by forming their own dynamic energy balanced state (harmonization).

Unicellular organisms consist of only one cell, but multicellular organisms comprise a lot of different kinds of cells. The same kinds of cells form tissues, and many kinds of tissues form organs, and furthermore, many kinds of organs form the bodies of multicellular organisms.

Each cell contains many high molecular weight compounds, low molecular weight compounds and elements, which perform their functions through mutual cooperation. Each cell forms a state of its respective dynamic energy balance (harmonization), and at the same time performs its respective function. Each tissue has many cells, which perform their respective functions through mutual cooperation. Furthermore, each tissue forms a state of its respective dynamic energy balance (harmonization) and at the same time performs its function through the work of these cells. Each organ has many kinds of tissues, which perform their respective functions through mutual cooperation. And, each organ forms a state of dynamic energy balance (harmonization) and at the same time performs its respective function through the work of these tissues.

The bodies of living organisms contain many kinds of organs, which perform their respective functions through mutual cooperation. Furthermore, the bodies of living organisms form a state of dynamic energy balance (harmonization) at the individual level, and at the same time, performs their function at the individual level through the work of these tissues. This is the state of the existence of life. When the state of dynamic energy balance (harmonization) of the organism at its individual level collapses, the organism dies.

Whether or not there is an aim for the existence of life has been discussed for a long time. Some people, such as Novikoff<sup>5</sup>, clearly deny that there is an aim to the existence of life, but most people are in the affirmative. I affirm it, considering that living organisms are continually existing and evolving with the aim of stabilizing their dynamic energy balance (harmonization) as mentioned above.

(6) Living organisms and groups thereof maintain the stability of their own dynamic energy balance (harmonization) by closely depending on their environment

As mentioned above, living organisms in particular are open systems among all things, and closely depend on their environment. As Schrödinger<sup>6</sup> mentions, living organisms continually take in negative entropy from the environment, maintain their own order, stabilize the state of their own energy balance (harmonization), and at the same time, continually discharging positive entropy into the external world. It can be said that living organisms exist by maintaining the stability of their own dynamic energy balance (harmonization) through continually working in close cooperation with their surrounding environment. Accordingly, living organisms are strongly affected by atmospheric pressure, temperature, the quantity of negative entropy and other things in the environment.

For example, according to a study by Laws<sup>7</sup>, African elephants delay their sexual maturation age and decrease the number of individuals automatically to cope with deterioration in their surrounding environment. This is probably an automatic stabilizing operation of dynamic energy balance (harmonization) of a group of organisms in accompaniment with reduction of negative entropy in the environment. Such a phenomenon is recognized by Fowler<sup>8</sup> in many other animals.

In this way, organisms closely cooperate with the environment, and continually change and evolve towards the direction of enhancing the stabilization of the dynamic energy balance (harmonization). These phenomena manifested by organisms are also sometimes called an adaptation to the environment.

(7) All living organisms on earth contribute to stabilization of the dynamic energy balance (harmonization) of the earth that is their environment.

The earth is one of the planets belonging to the solar system, and its own dynamic energy balance (harmonization) is wonderfully maintained as a heavenly body. The CO<sub>2</sub> density in the atmosphere of the earth has attracted attention in recent years in relation to the problem of global warming. According the studies of Petit et al.<sup>9</sup>, for the period of the past 420000 years the CO<sub>2</sub> density in earth's atmosphere had fluctuated between 180 ppm to 300 ppm with a cycle of  $10 \times 10^4$  years and had never been higher nor lower than this range. I consider that this phenomenon is also due to the stabilizing power of dynamic energy balance (harmonization) of the earth itself.

The most important thing in the stabilizing power of these CO<sub>2</sub> densities in earth's atmosphere is probably the rise and decline of plants on earth as Körner<sup>10</sup> also mentions. It appears that when CO<sub>2</sub> density on earth increases, the breeding of plants and microorganisms which carry out photosynthesis is facilitated, and conversely, when CO<sub>2</sub> density decreases, the breeding of these plants and microorganisms is restricted. I consider that these are the stabilizing operation of dynamic energy balance (harmonization) in the heavenly body called earth.

(8) The philosophical and religious significance of the existence of life is the relationship with the hypothesis of energy balance (harmonization).

It appears that the concept that the origin of all things including life is energy has already existed among peoples of ancient times. Around the 5th to 6th century B.C., one of the fundamental thoughts of Buddhism originating in India is the concept of emptiness, sunyata in Sanskrit<sup>11</sup>. This concept states that all things existing in the universe are continually flowing and changing and that there is no entity that does not ever change. I consider that my hypothesis<sup>1,2</sup> that the existence of all things in the universe is a stable state of dynamic energy balance (harmonization) is close to the concept of emptiness expressed in Buddhism.

Furthermore, the concept of Herakleitos from around the 5th to 6th century B.C. that the origin of all things is fire and the idea of Chuang-tzu from around the 4th century B.C. that the origin of all things is one are well known. I consider that there is something in common between my hypothesis relating to dynamic energy balance (harmonization) and the ideas expressed by Herakleitos and Chuang-tzu.

In my hypothesis<sup>1,2</sup>, I consider that all things existing in the universe are formed by the stabilizing power of dynamic energy balance (harmonization) which controls the universe, and that these all things exist and evolve by the stabilizing powers of their energy balance (harmonization). I consider that there is something in common between the former half of this hypothesis and the concepts of Christianity and other monotheistic religions which state that all things in the universe are created and controlled by an allmighty God, and between the latter half of this hypothesis and the concepts of Shintoism and other polytheistic religions which state that a God dwells in all things in the natural world. I also consider that the designer of the intelligent design (ID) of all organisms is the stabilizing power of the dynamic energy balance (harmonization)

Scheler<sup>3</sup>, as a philosopher, desires an advent of the age of balance or harmonization of mankind in the future, and advocates integration and harmonization of knowledge of control, knowledge of essence and knowledge of relief. I consider that my hypothesis of dynamic energy balance (harmonization) concerning the existence of life is related to the knowledge of essence described by Scheler.

Heidegger<sup>4</sup>, philosophically pursues the significance of the existence of human beings, and attempted to resolve the significance of the existence of all things in the universe in relation to time. It appears to me that his concept is like the theory of state of all things, which are changing over time. It is interesting in the relationship to my hypothesis on dynamic energy balance (harmonization) of the existence of all things.

(9) The future of life on earth and the responsibility of mankind for it.

As I mentioned earlier, studies of Petit et al.<sup>9</sup> have confirmed that the CO<sub>2</sub> concentration in earth's atmosphere has fluctuated between 180 ppm and 300 ppm for  $42 \times 10^4$  years up until recently. However, according to a study by Körner<sup>10</sup>, the CO<sub>2</sub> concentration has gradually risen in recent years, to reach 375 ppm in 2004. This

means that the CO<sub>2</sub> concentration has risen abnormally, in excess of the automatic stabilizing power of the earth. The cause of this abnormal rise in CO<sub>2</sub> concentration can probably be ascribed to mankind. The increase of other greenhouse effect gases in the atmosphere is also probably caused by mankind.

A change in meteorological phenomena such as rises in the temperature of the surface of the earth, rises in sea levels, increased regional rainfall caused by increased greenhouse effect gas emission into the atmosphere have been forecast. It appears that the activities of mankind on earth are probably going to bring about destabilization to the earth in huge excess of the stabilizing power of dynamic energy balance (harmonization) of the earth itself.

Life existing on the earth at present will face the final period of their evolution at some future time, and as many organisms as were exterminated at the end of the Cretaceous period  $62 \times 10^6$  years ago will be exterminated again<sup>2</sup>. However, the kind of living organisms that will flourish in the next age were prepared  $62 \times 10^6$  years ago by the stabilizing mechanism of dynamic energy balance (harmonization) of the earth itself. These new kinds of organisms were not at a sufficient level in terms of evolution, and were not fully adaptable to the global environment at that time. However, I consider that they had the adaptability to survive major changes in the global environment due to a large degree of freedom in protein primary structure<sup>2</sup>. I hope that mankind living on earth at present will not hinder the stabilizing mechanism of dynamic energy balance (harmonization) of the earth.

#### Concluding remarks

I consider that the primary factor for the existence of life is the stabilization of their dynamic energy balance (harmonization) and

that its primary motive force is the stabilizing power of dynamic energy balance (harmonization) which controls the universe. I also consider that at this time, stable state of dynamic energy balance (harmonization) will still be maintained at each level (atom, molecule, cell, tissue and organ) which comprise the bodies of living organisms. Furthermore, I consider that the significance of the existence of life can be understood in a manner integral to science, philosophy and religion using this hypothesis of dynamic energy balance (harmonization) for the existence of life. I have given a name of universal harmonizer to the primary motive force.

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